3D Forward-looking Sonar: Saving Money and Whales

by

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For more information, contact

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Overview

- Motivation
- 3-D Forward-looking Sonar
- Review of Past Results
- Market Analysis
- Benefits to Marine Industry

Problem: Whale Shipstrike

- Shipstrike is the leading cause of death of the northern right whale.

On March 12, 1991, a dead right whale was found along the coast of Amelia Island, Florida near Fernandina Beach. This whale, named Buoy Boy, had been struck by a ship.

Bad for everyone:the whale, the ship captain/owner, and the port

Solutions

- Shut down or move shipping lanes
- Passive acoustic monitoring
- Airborne monitoring
- 3-D Forward Looking Sonar

Solutions

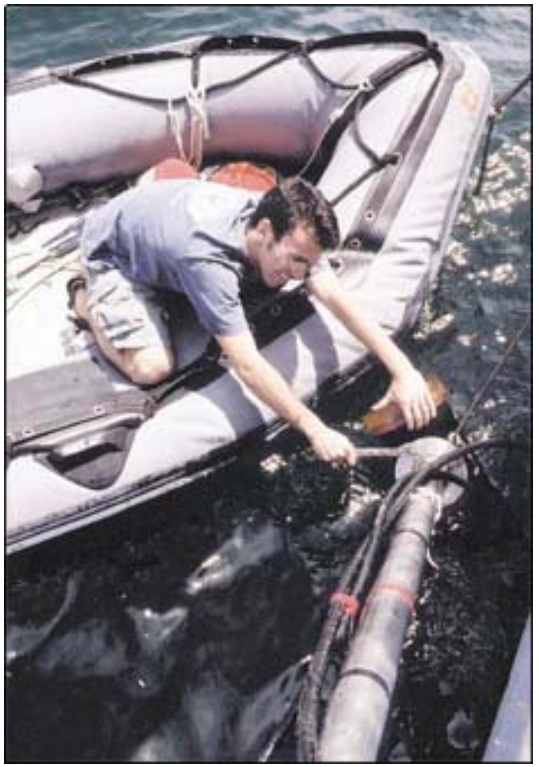
- Shut down or move shipping lanes: $$$
- Passive acoustic monitoring: $$$
- Airborne monitoring: $$$
- **3-D Forward Looking Sonar**
  - **Saves money**
  - **Help prevent groundings**
  - **Insurance savings**
  - **Routing efficiencies**
  - **Port security**

History

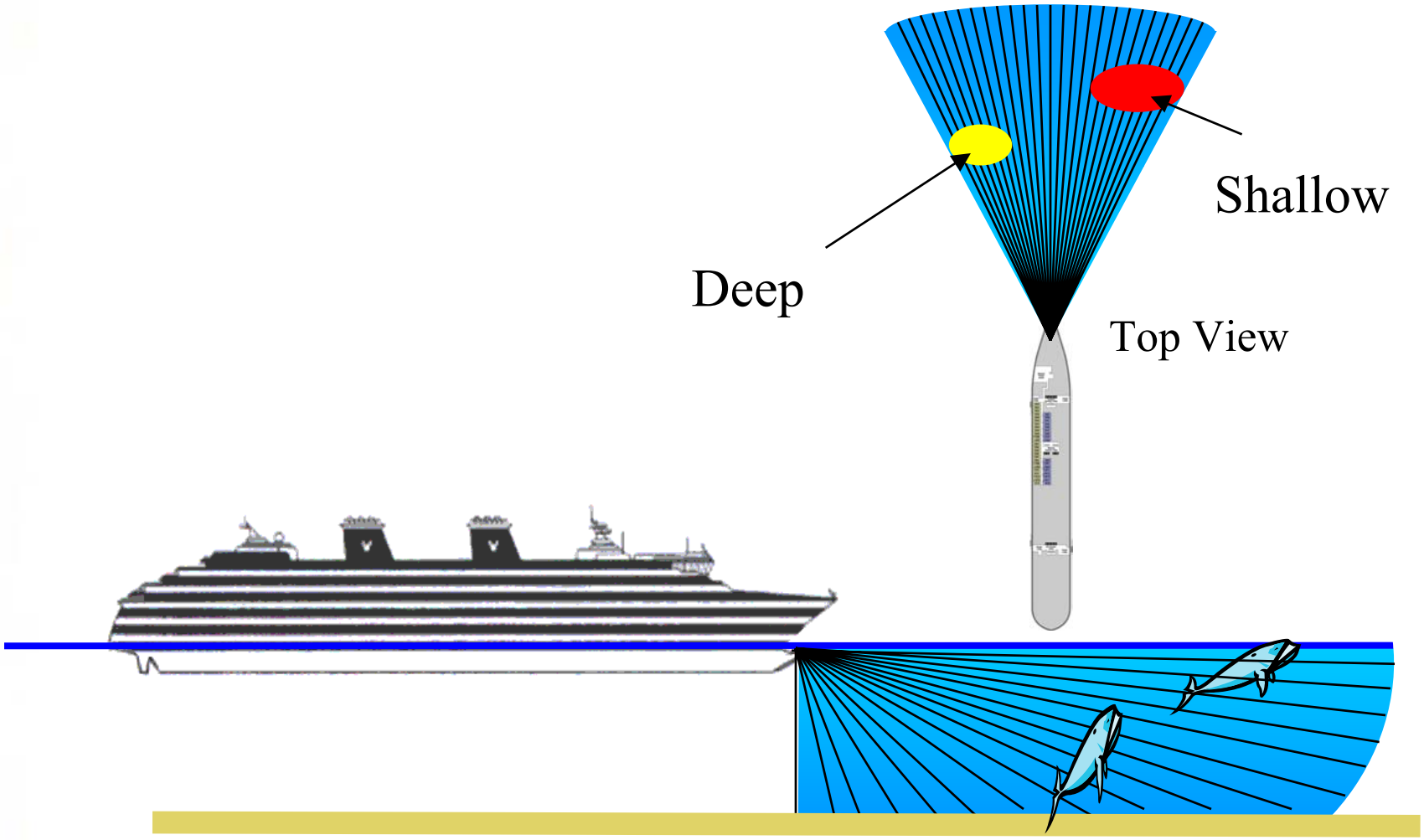
- **1997-2000**: Funding from URI Ocean Technology Center
- **2000-2001**: ONR funding for whale observations during tests (Mediterranean and N. Atlantic)
- **2000-2002**: NMFS purchased beta prototype system
- **Sept. 2002**: FS200 product launched

The Team

- **Cheryl M. Zimmerman, Chief Executive Officer**
  - MS, Mechanical Engineering, Tufts
  - Experienced Entrepreneur
    - M&A, Business Development and Operations
  - ➢ Business & Finance Leadership
- **James H. Miller, Chairman and Chief Scientist**
  - Professor: URI Ocean Engineering
  - Doctorate, Underwater Acoustics, MIT / WHOI
  - ➢ Core Technology Leadership
- **Matt Zimmerman, V.P. Engineering**
  - BS, Ocean Engineering, URI
    - International Engineering Program Graduate
  - ➢ Engineering & Development Leadership

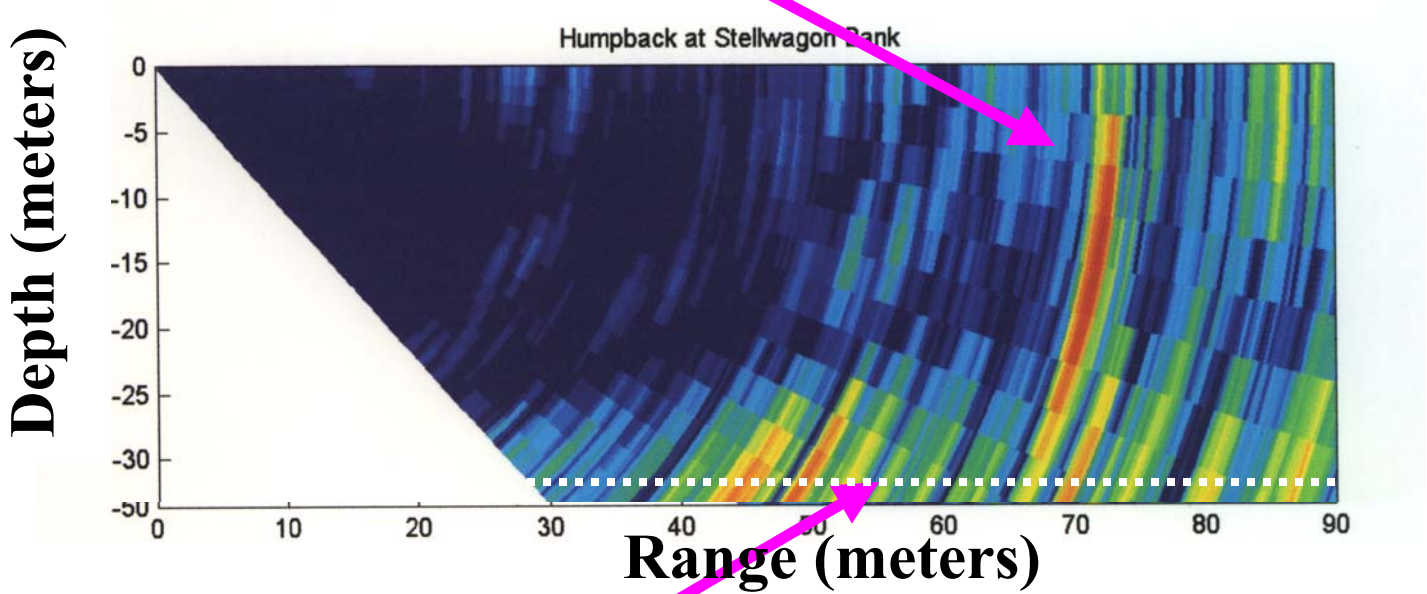


FarSounder 3-D Forward-Looking Sonar



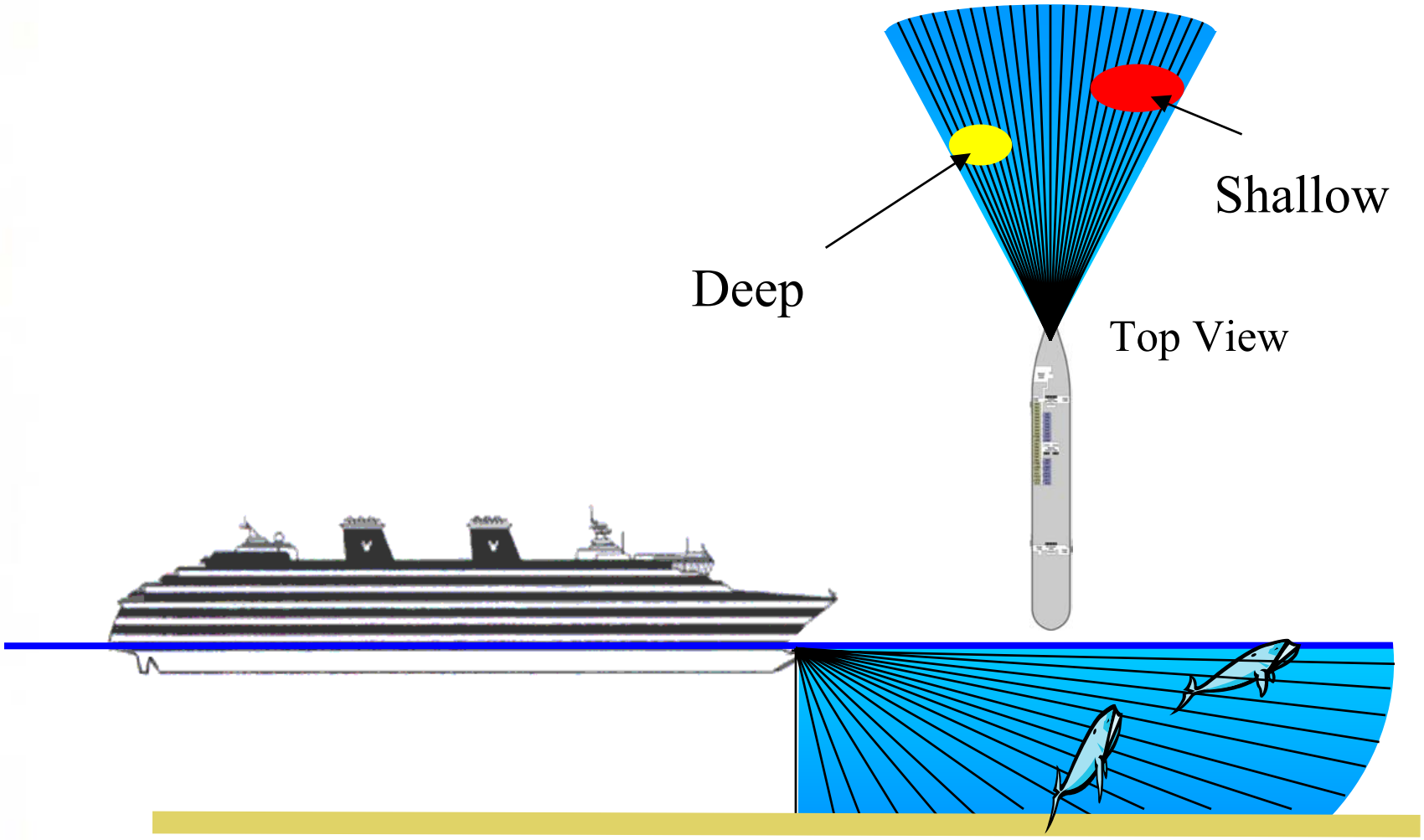
Humpback whale on Beta 1 sonar

Side View

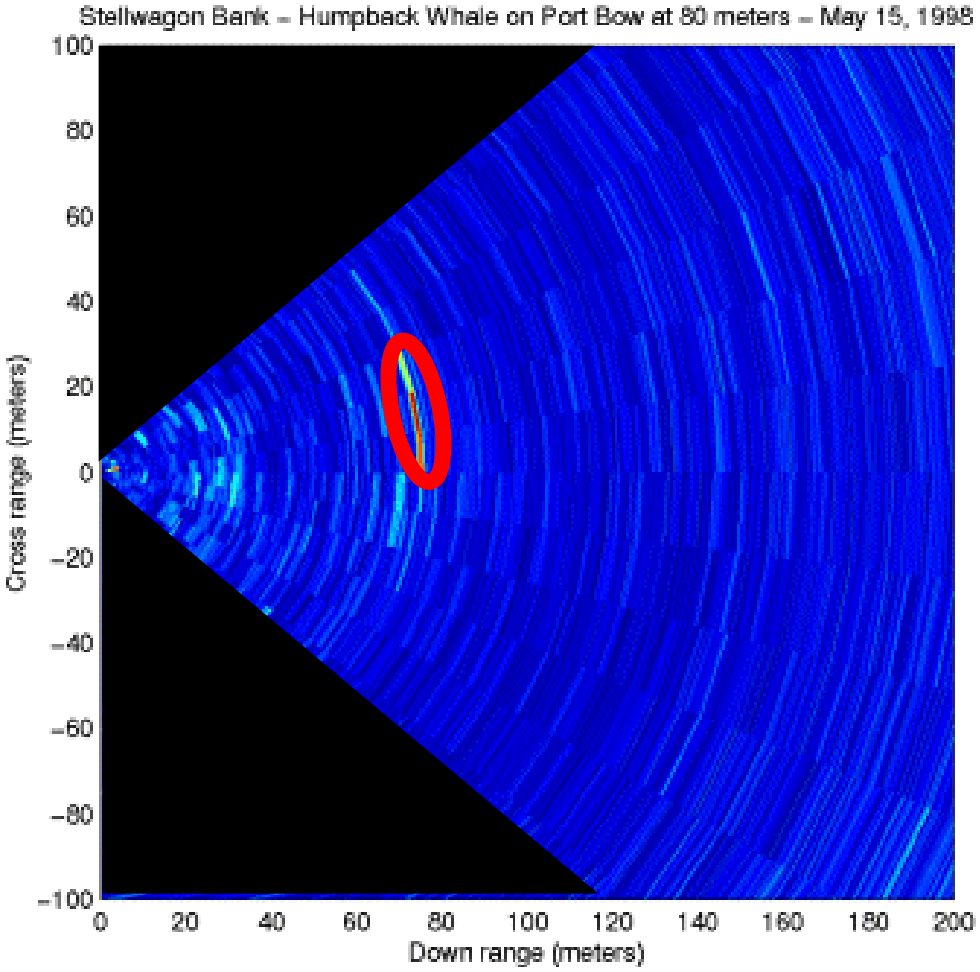


Seafloor

FarSounder 3-D Forward-Looking Sonar

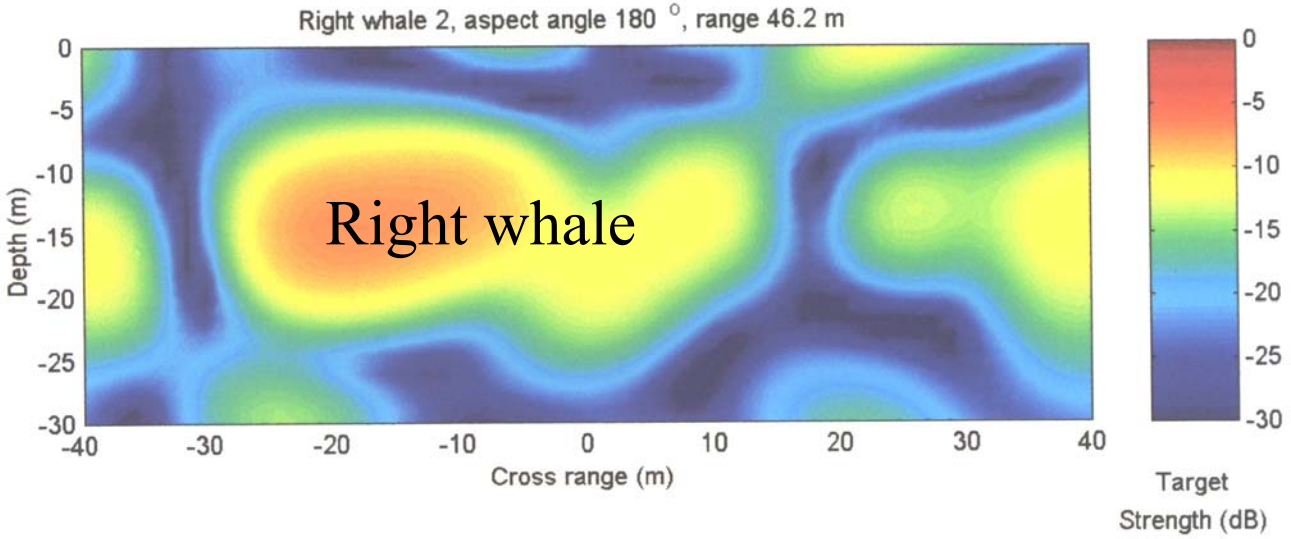


Humpback whale detection



Top View

Measured right whale sonar returns

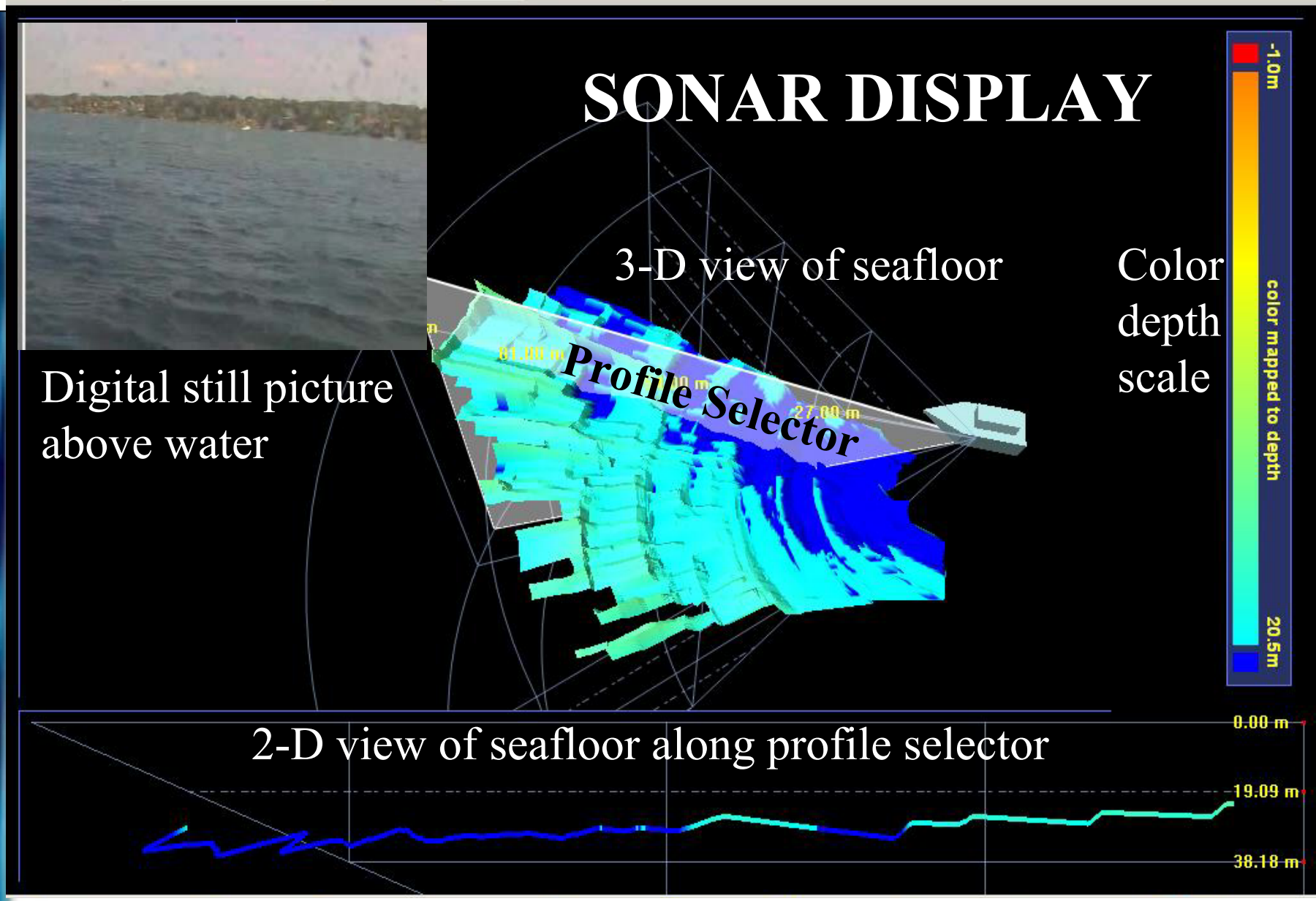


Are we doing any harm?

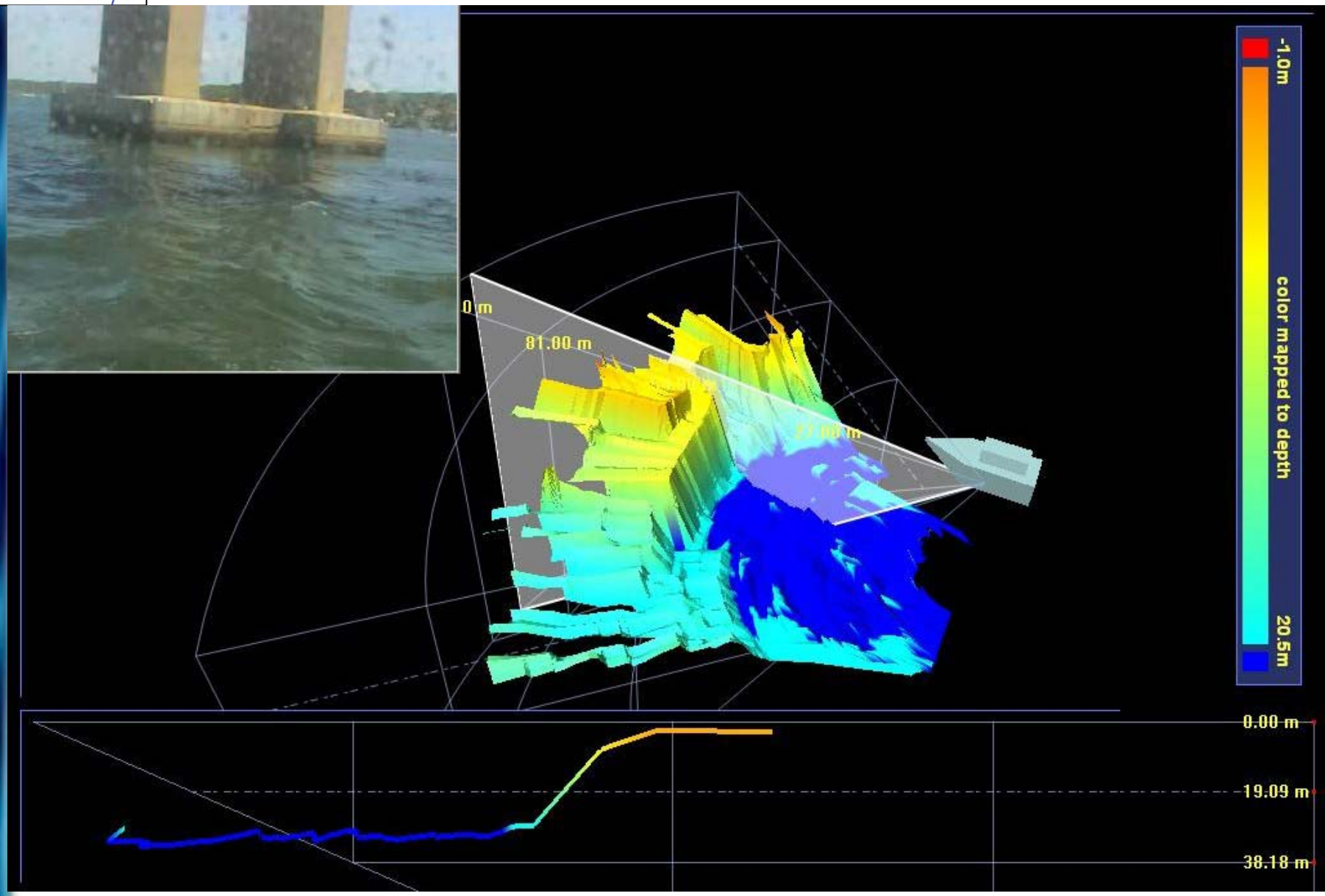
- We are concerned with the effects of man-made sound on marine mammals.
- Everything we know about the hearing of mysticetes tells us they cannot sense the high frequency (>30 kHz) sound signals.
- Precautions were taken and no effects of any kind have been observed.

Beta 5 Demonstration System

Narragansett Bay, 8/22/02



Narragansett Bay, 8/22/02



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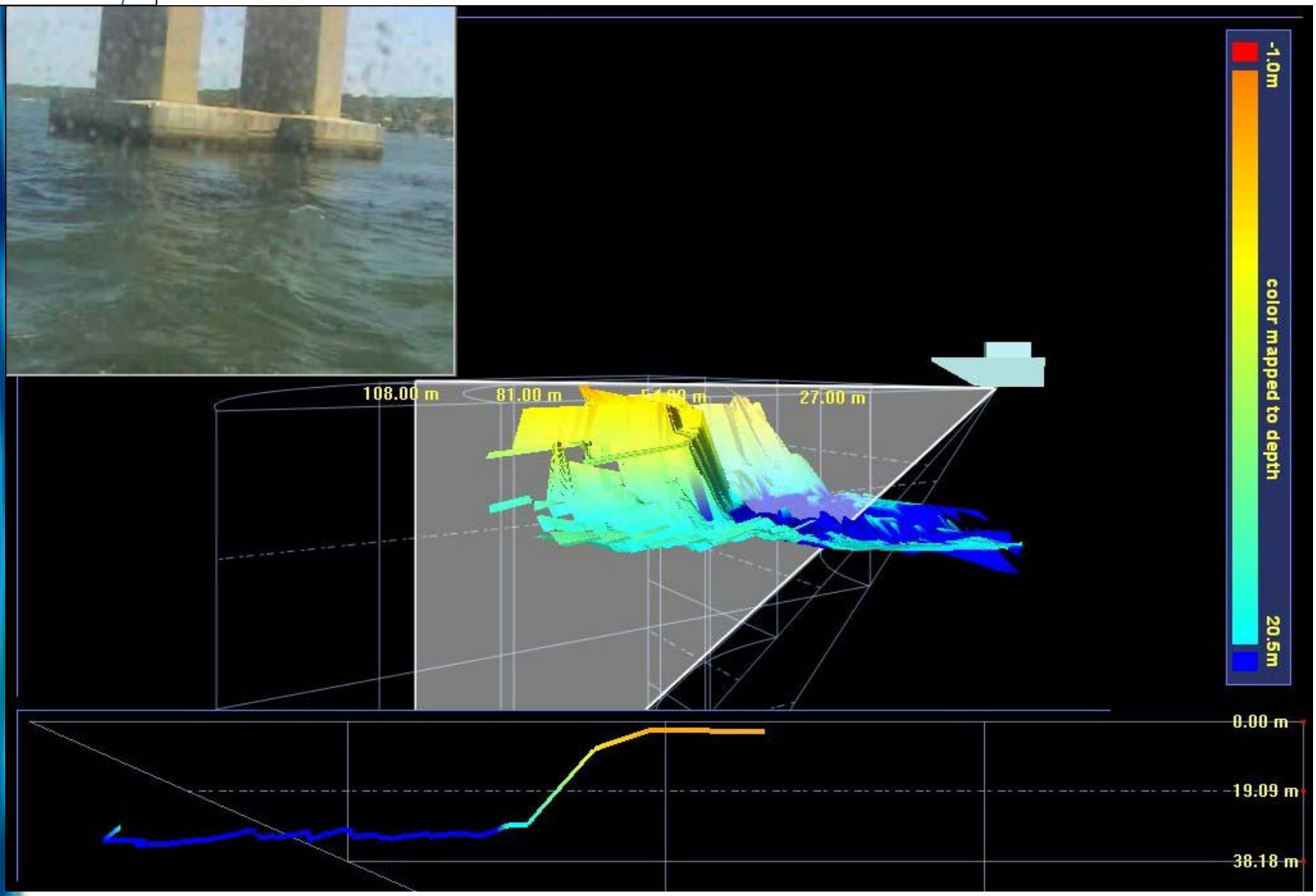

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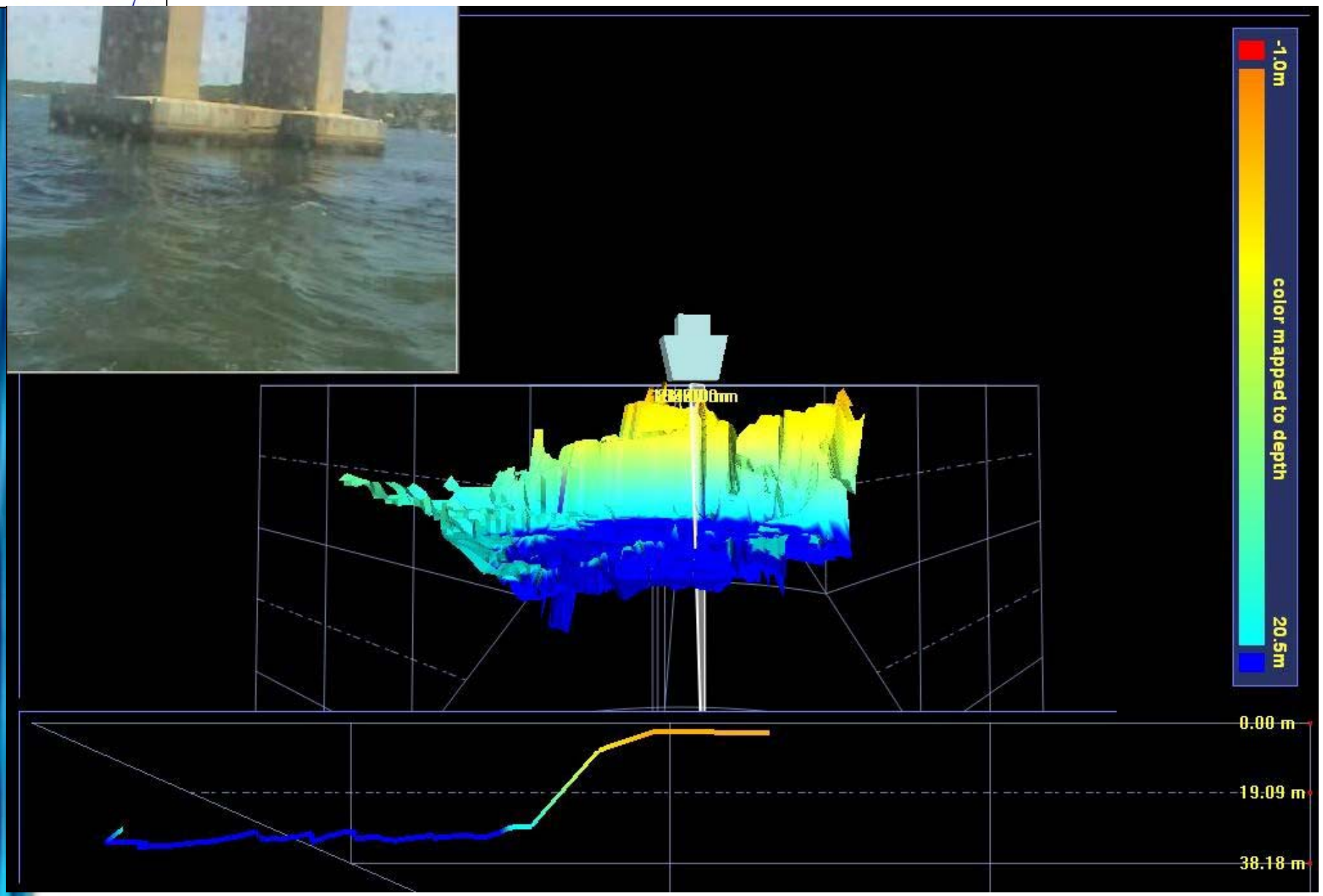
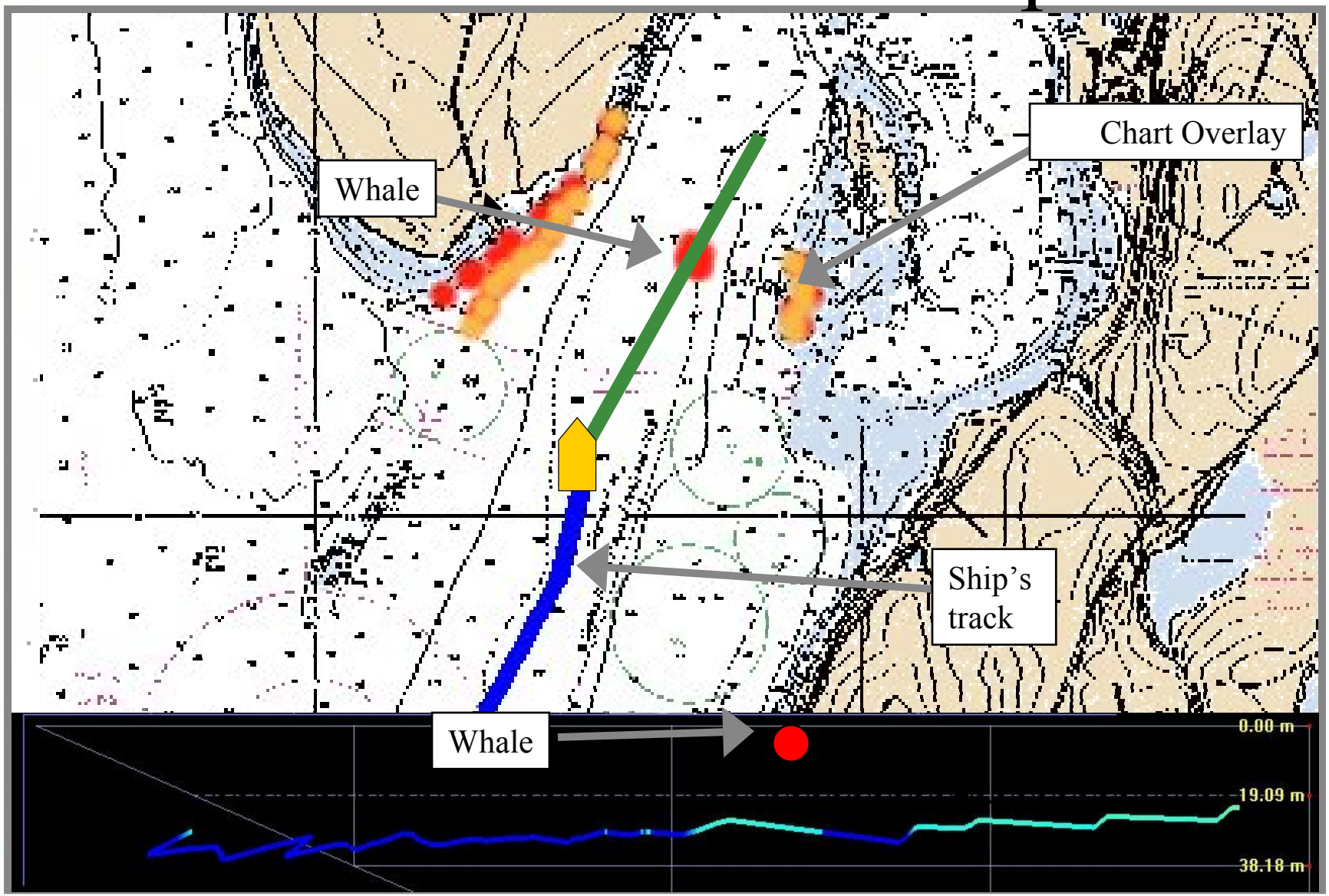
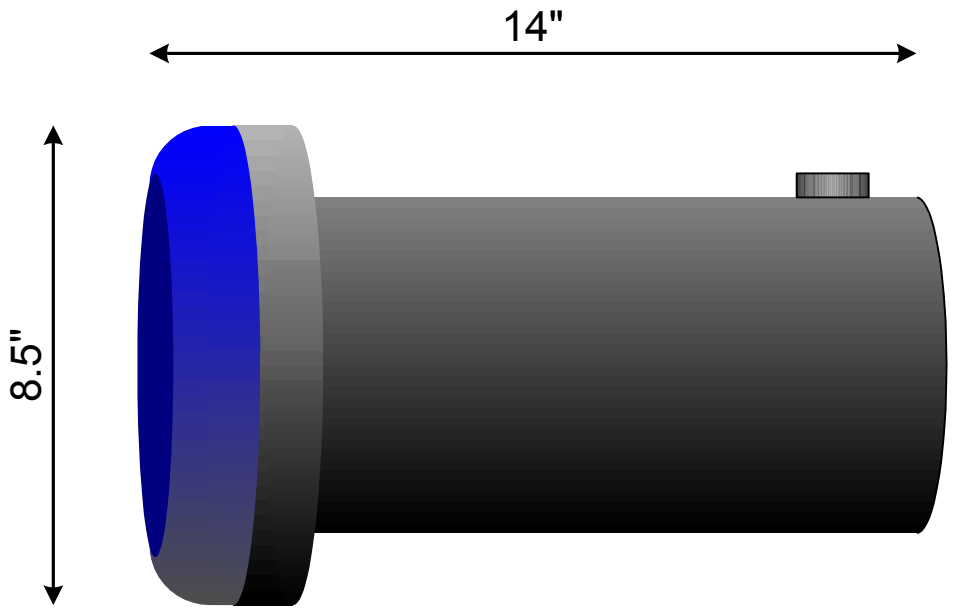


User Interface Concept



FS200 Product For Sale Now



Installation

- Easily installed in conformal hull package
- Sonar head encased in impact-resistant polyurethane
- System runs in Windows XP
- Small rack-mountable power module

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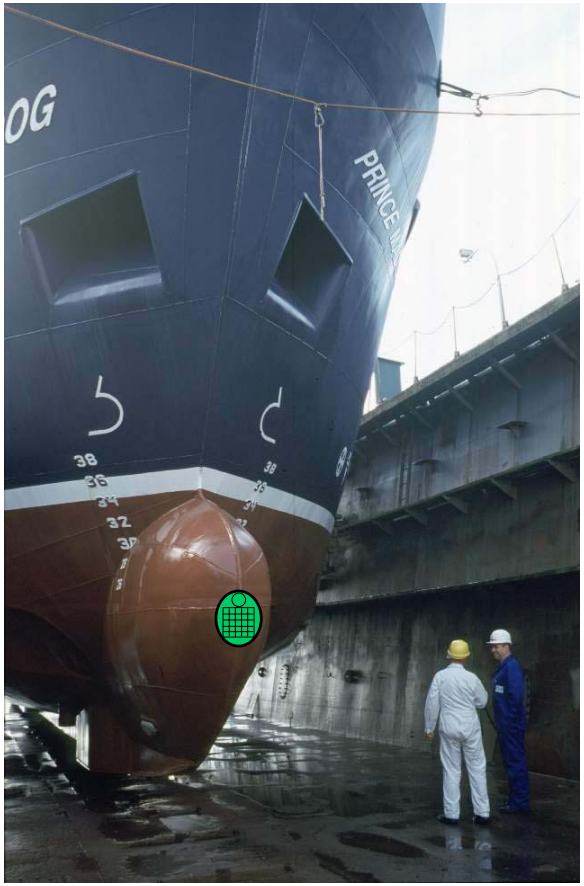

Benefits to Marine Industry

- Collision Avoidance
- Insurance Savings
- Routing Efficiencies
- Safety
- Decreased time in dry dock for repairs
- Reduced environmental impact

Saves money and whales

Conclusions

- Whale shipstrike avoidable using 3-D forward-looking sonar
- Beta 5 system tested and proven on seafloor and obstacles
- Whales detectable at navigationally relevant ranges
- FS200 product available for order now
- Longer range systems in the pipeline